



PRIORITY #1: S A F E T Y



Brush Up Periodontal Disease and Pregnancy

Janis R. Guilbeau, RN, MSN, FNP-BC
Helen Hurst, DNP, RNC, APRN-CNM

Prenatal care is important for the identification of risk factors for periodontal disease

The American Academy of Periodontology (2009) reports that women with periodontal disease may be seven times more likely to have preterm or low-birth-weight babies. Recent research findings suggest associations between periodontal inflammation and increased risks for systemic health problems, including diabetes, heart and lung disease, stroke and birth of low-birth-weight premature infants. In 2006, the Centers for Disease Control and Prevention (2006) reported that 12.4 percent of births in the United States were preterm, costing at least \$26.2 billion, or \$51,600 per infant born preterm. The National Center for Health Statistics (2008) indicates that infants who died of preterm-related causes accounted for 36.5

percent of the infant deaths in 2005, an increase of 5 percent since the year 2000. More than 500,000 babies are born prematurely each year and the ones who survive are often plagued with lifelong health consequences, such as cerebral palsy and learning difficulties. Prenatal care is important for the identification of risk factors for periodontal disease. As a modifiable risk factor that can endanger an otherwise safe and healthy pregnancy, periodontal disease can be addressed by health care professionals through anticipatory guidance, education, screening and treatment.

The rate of preterm birth in the United States continues to increase, despite the advances in medical technology and medical care. The target goal of *Healthy People 2010* for the U.S. infant mortality rate is 4.5 infant deaths per



1,000 live births (U.S. Department of Health and Human Services, 2000a). Many risk factors contribute to preterm labor and birth, such as preterm rupture of membranes, premature dilation of the cervix, multiple pregnancy as well as maternal infections and disease. Any maternal infection during pregnancy can be a threat to the well-being of the mother and fetus and should be managed. Periodontal disease has been identified as possibly leading to preterm labor and other conditions such as pre-eclampsia, gestational diabetes, fetal loss and small-for-gestational age infants (Bogges, 2008). In 2004 the American Academy of Periodontology recommended that women who are planning pregnancy or who are already pregnant should have a dental examination, preventive therapy and treatment (Bogges).

Periodontal Disease

In 2000, the first ever U.S. Surgeon General Report on Oral Health described the growing prevalence of oral diseases (U.S. Department of Health and Human Services, 2000b). Periodontal disease, which includes the infectious conditions of gingivitis and periodontitis, is often "silent," so affected individuals are often unaware of their conditions. With gingivitis the gums are swollen, red and may bleed, and if left untreated may lead to the more severe condition of periodontitis. Professional dental care and good oral hygiene can reverse the effects of gingivitis. The most common cause of tooth loss in the adult population is attributed to periodontitis, a result of plaque spreading below the gum

line and the resulting bacteria producing toxins that induce an inflammatory response. This inflammatory response breaks down the bones and tissues that support the teeth, and the gums recede and separate from the teeth, resulting in spaces that become infected. Left untreated, the destruction of the bones and teeth continue and may ultimately result in tooth loss.

Implications for Pregnancy

The prevalence of periodontal disease in the adult population is well-documented and in pregnant women the rate is noted to be as high as 40 percent (Bogges, 2008). It's reported that as many as 50 percent to 70 percent of pregnant women will have some level of gingivitis during pregnancy as a result of hormonal changes (Jared & Bogges, 2008). Also, certain populations of pregnant women, including African Americans and those with low socioeconomic status, have been identified as being at higher risk. Some reports indicate that only 23 percent to 43 percent of pregnant women receive any kind of dental health care while pregnant (Bogges). The physiological changes during pregnancy that result from natural hormonal occurrences promote an inflammatory condition that can increase the risk of gingival problems. Often, the first manifestations of periodontal disease are bleeding gums during tooth brushing. Unfortunately, this symptom may be interpreted by the obstetric provider as a normal discomfort of pregnancy when, in fact, the mother may have greater dental issues that need to be evaluated.

Women who are planning pregnancy or who are already pregnant should have a dental examination, preventive therapy and treatment

Janis R. Guilbeau, RN, MSN, FNP-BC, is a family nurse practitioner and clinical instructor; Helen Hurst, DNP, RNC, APRN-CNM, is an assistant professor; both authors are at the College of Nursing, University of Louisiana at Lafayette, in Lafayette, LA. Address correspondence to: jrguilbeau85@louisiana.edu.

DOI: 10.1111/j.1751-486X.2009.01811.x



Unfortunately, dental care is not often seen as a vital part of the prenatal care regimen and is often overlooked during early evaluations and visits

The major implications of periodontal disease in pregnancy may include preterm birth, pre-eclampsia, low birth weight, mortality and intrauterine growth restriction. However, the absolute risk and causal relationships continue to be controversial (Jared & Boggess, 2008). Preterm labor and birth is of particular concern due to the high rates of subsequent mortality in the infant born preterm and the long-term medical problems that often result. Preterm infants are at risk for respiratory distress syndrome, jaundice, poor thermal regulation, neurologic problems, developmental problems and other conditions. Furthermore, the cost of caring for infants born preterm continues to escalate, and strains the financial resources of families.

Screening and Treatment

The American Academy of Periodontology and the American Dental Association recommend that all pregnant women and those considering pregnancy receive a dental evaluation (American Dental Association, 2009). The identification and subsequent treatment of dental conditions has the ability to minimize adverse outcomes and should be offered to all pregnant women as a strategy for promoting a safe and healthy pregnancy. The preconception planning phase is the ideal time to begin discussing dental health, but many of the women who are at particular risk for adverse pregnancy outcomes and periodontal disease may not have access to such care, and many of their pregnancies are unintended. An overall dental examination should be encouraged in early pregnancy. However, many women may be reluctant to comply with this recommendation in the first trimester due to nausea, vomiting and increased sensitivity of the gag reflex.

Unfortunately, dental care is not often seen as a vital part of the prenatal care regimen and is often overlooked during early evaluations and visits. An integral part of the initial prenatal visit should be an assessment of the woman's dentition, dental health habits, risk factors for poor dental health and frequency of dental health examinations. This early assessment may be done by the office nurse as part of the health history. The early dental examination will not only provide the opportunity for identification and treatment of early periodontal disease, but will also allow for dental health hygiene education and

provide a baseline evaluation of the woman's dental health status. The nurse should also be familiar with current dental health recommendations and advise the woman on daily brushing and flossing, the use of fluoride and sealants, the avoidance of high-sugar foods and the importance of avoiding smoking. If dental issues are identified, a referral should be made to a dental health professional for evaluation and treatment. Collaboration between the dental professional and the obstetric provider is vital if extensive treatment and anesthesia are required. Anticipatory guidance involves teaching about and assessing for signs of periodontal disease (Box 1).

One common misconception is that pregnant women can't receive dental treatments such as X-rays, repair of cavities and tooth extraction during pregnancy. X-rays may be performed safely with the woman's abdomen covered by a lead apron. The Academy of General Dentistry (2009) recommends a visit to a dentist before pregnancy as well as during pregnancy. It suggests a checkup in the first trimester for a cleaning and a dental plan for the rest of pregnancy. The second trimester may involve a cleaning and monitoring of changes and depending on

Box 1.

Warning Signs of Periodontal Disease

- Red, swollen or tender gums or other mouth pain
- Bleeding while brushing, flossing, or eating hard food
- Gums that are receding or pulling away from the teeth, causing the teeth to look longer than before
- Loose or separating teeth
- Pus between the gums and teeth
- Sores in mouth
- Persistent bad breath
- A change in the way teeth fit together when the woman bites down
- A change in the fit of partial dentures

Source: American Academy of Periodontology (2009)

the patient, an early third-trimester checkup may be warranted. The American Academy of Periodontology (2009) recommends that pregnant women receive routine care such as scaling and root planing (removal of plaque and smoothing of root surface) during the second trimester. Treatment of any identified condition should occur early and abscesses and acute infections may be treated at any gestational age. The early dental examination not only provides the opportunity for identification and treatment of early periodontal disease, but also allows for dental health hygiene education and a baseline evaluation of the pregnant woman's dental health status (Jared & Boggess, 2008).

Access to Care

The ability for pregnant women, especially those in high-risk groups, to access dental care is a significant issue. The nurse must assess the pregnant woman's motivation and perception of oral health as well as barriers to care to adequately introduce preventive dental care. The office nurse often spends more time with the pregnant woman than the obstetric provider does, and can play an integral role in aiding the woman with access to dental care. It's vital for providers to be aware of dental professionals to whom pregnant woman can be referred for consultation. Furthermore, the establishment of a relationship with a particular dentist who can be used for referrals on an ongoing basis can aid in continuity of care and may facilitate the ease of access to care. In such a relationship, the dentist and obstetric provider can be clear on procedures, medications and therapies that they consider acceptable for their pregnant patients.

Conclusion

Periodontal disease may pose a safety risk to the pregnant woman and her fetus if it remains untreated. Preterm labor and birth, pre-eclampsia, low birth weight and diabetes have been identified as possible complications of periodontal disease during pregnancy. Oral hygiene and dental care is often overlooked as an important part of preconception and prenatal care. The

health benefits of prevention and early detection of periodontal disease are well-documented. Nurses are in a pivotal position to address safety and prevention issues related to pregnancy by identifying risks and early signs and symptoms of periodontal disease and by providing education on dental health issues.



<http://www.aawhonn.org>

References

- Academy of General Dentistry. (2009). *How does pregnancy affect my oral health?* Retrieved March 9, 2009, from <http://www.agd.org/support/articles/?ArtID=1309>
- American Academy of Periodontology. (2009). *Baby steps to healthy pregnancy and on time delivery.* Retrieved March 9, 2009, from <http://periodio.org/consumer/pregnancy.htm>
- American Dental Association. (2009). *Oral health topics: Pregnancy.* Retrieved March 9, 2009, from http://www.ada.org/public/topics/pregnancy_faq.asp - 1
- Boggess, K. (2008). Maternal oral health in pregnancy. *Obstetrics and Gynecology*, 111(4), 976-986.
- Centers for Disease Control and Prevention. (2006). *Maternal and infant health research: Preterm birth.* Retrieved February 14, 2009, from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pbp.htm>
- Jared, H. & Boggess, K. (2008). Periodontal disease and adverse pregnancy outcomes: A review of the evidence and implications for clinical practice. *Journal of Dental Hygiene*, 3(Summer Suppl.), 3-21.
- National Center for Health Statistics. (2008). *Recent trends in infant mortality in the United States.* Retrieved September 20, 2009, from <http://www.cdc.gov/nchs/data/databriefs/db09.htm>
- U.S. Department of Health and Human Services. (2000a). *Healthy People 2010: Understanding and improving health* (2nd ed.). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services. (2000b). *Oral health in America: A report of the Surgeon General Executive Summary* (NIH Publication No. 00-4713). Rockville, MD: National Institute of Dental and Craniofacial Research.